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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,257	08/31/2006	Wagner Ingo	59344US004	9293
32692 7590 11/23/2009 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
EXAMINER KWAK, DEAN P				
ART UNIT 1797		PAPER NUMBER		
NOTIFICATION DATE 11/23/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com
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Office Action Summary

Application No.

10/591,257

Applicant(s)

INGO ET AL.

Examiner

Dean Kwak

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 10 September 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on 09/10/2009. These drawings are accepted.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 5, 7-9, 11, 13 & 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Dreve (US 5,853,774).

Regarding Claim 1, Dreve discloses an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C2/L13), each cartridge adapted for containing a component (e.g., pasty mass, C1/L49) of the multi-component compound and having a plunger (e.g., pistons, C4/L29 & Fig. 5 (2)) adapted for pressing out its component from the cartridge; and
- a driving device (e.g., electric motor, C2/L24) for said plungers in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein the driving device comprises a stepping motor (see “stepped”, C2/L24-25), and a detector (e.g., limit switch, C2/L29 & Fig. 5 (44))

associated with the stepping motor for detecting the load on the stepping motor (“...prevents over-loading of the drive...”, C2/L29-30).

Regarding Claims 4 & 5, Dreve further discloses an apparatus wherein:

- the driving device is adapted to drive the stepping motor at a predetermined constant speed (C2/L24-27); and
- the driving device is adapted to drive the stepping motor at different predetermined essentially constant speeds for one or different components and compounds (C2/L24-27).

Regarding Claim 7, according to the specification of the instant application, a stepping motor has high torque at low speed ([0027]); therefore a stepping motor inherently has the recited limitations.

Regarding Claims 8, 9, 11 & 16, Dreve further discloses an apparatus wherein:

- an output shaft (e.g., driven shaft, C5/L5 & Fig. 5 (10)) of the stepping motor is connected via a belt (e.g., flexible steel band, C5/L5-6 & Fig. 5 (11)) to each device (see Fig. 5) for moving the plunger;
- the driving device is adapted to monitor the position of the plungers (e.g., limit switch, C2/L29 & Fig. 5 (44));
- the driving device is adapted to detect and monitor an empty position of a plunger when said respective cartridge is empty (C3/L19-25); and

- comprising a mixer (e.g., mixing head, C4/L33 & Fig. 1 (40)).

Regarding Claim 13, Dreve discloses a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components (e.g., pasty mass, C1/L49) from at least two cartridges (C2/L13) by driving plungers (e.g., pistons, C4/L29 & Fig. 5 (2)) inside the cartridges by means of a driving device in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein a stepping motor (see “stepped”, C2/L24-25) for driving the plungers is provided.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muhlbauer et al. (US 6,315,164) and further in view of Dreve (US 5,853,774).

Regarding Claim 1, Muhlbauer et al. disclose an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C4/L6 & Fig. 1 (5)), each cartridge adapted for containing a component (“pressing its components”, Abstract) of the multi-component compound and having a plunger (C4/L6-24; also see C4/L10, e.g., stamps & Fig. 1 (11)) adapted for pressing out its component from the cartridge; and
- a driving device for said plungers in which the driving speed is adjustable (see “regulating the advance speed...”, C2/L37-59), wherein the driving device comprises a motor (C4/L34 & Fig. 1 (22)), and a detector (e.g., electronic unit, C4/L50 & Fig. 1 (30)) associated with the motor for detecting the load on the stepping motor (C2/L47-48).

However, Muhlbauer et al. fail to disclose the status of load by the step frequency of the stepping motor.

Dreve discloses an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C2/L13), each cartridge adapted for containing a component (e.g., pasty mass, C1/L49) of the multi-component compound and having a plunger (e.g., pistons, C4/L29 & Fig. 5 (2)) adapted for pressing out its component from the cartridge; and
- a driving device (e.g., electric motor, C2/L24) for said plungers in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein the driving device comprises a stepping motor (see “stepped”, C2/L24-25), and a detector (e.g., limit switch, C2/L29 & Fig. 5 (44)) associated with the stepping motor for detecting the load on the stepping motor (“...prevents over-loading of the drive...”, C2/L29-30).

Muhlbauer et al. and Dreve are analogous because these references are directed to an apparatus for generating a multi-component compound (Abstracts).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a stepping motor, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Regarding Claims 2-6, modified Muhlbauer et al. disclose an apparatus wherein:

- the detector detects the status of load by the step frequency of the stepping motor (C2/L37-42);
- the detector detects the increase of load by a change or loss of driving steps of the stepping motor (Claims 1 & 2);
- the driving device is adapted to drive the stepping motor at a predetermined constant speed (Claims 1 & 2);
- the driving device is adapted to drive the stepping motor at different predetermined essentially constant speeds for one or different components and compounds (Claim 1);
- a predetermined speed of the stepping motor is essentially constant when the stepping motor is under load and at a higher speed in the absence of load (P5/L24-32).

Regarding Claim 7, modified Muhlbauer et al. disclose the recited limitations since the specification of the instant application states that a stepping motor has high torque at low speed ([0027]); therefore a stepping motor inherently has the recited limitations.

Regarding Claims 8-12 & 16, modified Muhlbauer et al. further disclose an apparatus wherein:

- an output shaft (e.g., threaded spindle, C4/L15 & Fig. 1 (14)) of the stepping motor is connected via a belt (C4/L27-28); or via wheels (e.g., annular discs, C4/L29) to each device (see Fig. 1) for moving the plunger;

- the driving device is adapted to monitor the position of the plungers (Claim 3);
- the driving device is adapted to monitor the position of the plungers by monitoring the driving steps of the stepping motor (Claim 3);
- the driving device is adapted to detect and monitor an empty position of a plunger when said respective cartridge is empty (Claim 4);
- the driving device is adapted to detect when the plungers contact the components after inserting the cartridges (Claim 2); and
- comprising a mixer (e.g., mixer nozzle, C3/L63 & Fig. 1 (10)).

Regarding Claim 13, Muhlbauer et al. disclose a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components (“pressing its components”, Abstract) from at least two cartridges (C4/L6 & Fig. 1 (5)) by driving plungers (C4/L6-24; also see C4/L10, e.g., stamps & Fig. 1 (11)) inside the cartridges by means of a driving device in which the driving speed is adjustable (see “regulating the advance speed...”, C2/L37-59), wherein a motor (C4/L34 & Fig. 1 (22)) for driving the plungers is provided.

However, Muhlbauer et al. fail to disclose the status of load by the step frequency of the stepping motor.

Dreve discloses a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components (e.g., pasty mass, C1/L49) from at least two cartridges (C2/L13) by driving plungers (e.g., pistons, C4/L29 & Fig.

5 (2)) inside the cartridges by means of a driving device in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein a stepping motor (see “stepped”, C2/L24-25) for driving the plungers is provided.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a stepping motor, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Regarding Claims 14 & 15, modified Muhlbauer et al. further discloses a method comprising the steps that:

- the plungers are advanced with high speed into an initial position in which they get in contact with the components (Claim 2);
- the plungers are retracted with high speed for a predetermined relief distance (C5/L18-21);
- the plungers are advanced with high speed either for a predetermined bias distance greater than the relief distance, or until the components begin flowing out of the cartridges or into the mixer (“rapid movement”, C5/L11-18);
- the plungers are driven with low speed for pressing out the components from the cartridges (P5/L24-32); and
- during driving the plungers with low speed for pressing out the components from the cartridges, the pressing force or load of the stepping motor is monitored and

compared with a predetermined upper limit (see measuring and comparing to a predetermined valves, C4/L50-C5/L3);

- if the upper limit is reached or exceeded, the stepping motor is stopped or adjusted to a lower speed (C5/L4-10).

Response to Arguments

8. Applicant's arguments filed 09/10/2009 have been fully considered but they are not persuasive.

9. With respect to Applicant's argument regarding Dreve's failure to disclose a "stepping motor", it is noted that Examiner maintains the rejection, for Dreve discloses an electric motor which can be operated in stepped manner to displace a pasty mass is interpreted as the same as the stepping motor of the instant invention.

With respect to Dreve disclosing only a standard DC electric motor, it is noted that as disclosed by evidential reference which was submitted with prior Office Action dated 05/12/2009, a DC motor can function as a "step" motor, see Farrell et al. (US 5,788,927), C35/L22-34.

With respect to Dreve does not disclosing a load sensor, the Examiner disagrees. The limit switch as disclosed by Dreve which prevents over-loading of the drive (electric motor) is construed as a load detector of the stepping motor.

10. With respect to Applicant's argument regarding combination of the references because Muhlbauer et al. is believed to seek a constant advance speed whereas Dreve discloses a variable

speed control, it is noted that Muhlbauer et al. disclose that the advance speed can be constantly regulated and varied, see C2/L22-32.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean Kwak whose telephone number is 571-270-7072. The examiner can normally be reached on M-TH, 5:30 am - 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LYLE A ALEXANDER/
Primary Examiner, Art Unit 1797

09Nov09
/D. K./
Examiner, Art Unit 1797